

**ABSTRACT**

The present invention relates to plasma spraying systems and their methods of use in the manufacturing of rotary sputtering targets. More specifically, the invention relates to plasma spraying systems that coordinate and facilitate the rotation and the lateral or longitudinal  
5 movement of the sputtering target, thereby providing a uniform application of coating to the target. These plasma spraying systems may also produce a stable and secure coating layer by controlling the deposition of various particle sizes emitted by the plasma spraying system and/or removing dust from the target before a coating is applied. The present invention may also  
10 include a vacuum device with an adjustable exhaust duct that assists in the reduction or elimination of oxygen or other atmospheric gas backstreaming into the vacuum chamber.